4. An arrangement comprising:

source means providing a DC voltage between a first and a second DC terminal;

inverter means connected with the DC terminals and operative to provide a sinusoidal AC voltage between a first and a second AC terminal; the AC voltage having a fundamental period; the inverter means being operative for a part of each fundamental period to cause the first AC terminal to be at the same potential as that of the first DC terminal; the part having a duration approximately one quarter that of the fundamental period; and

circuit means operative to connect a gas discharge lamp with the AC terminals.

5. An arrangement comprising:

a source providing a DC voltage between a first and a second DC terminal;

first means connected with the DC terminals and operative to provide a sinusoidal AC voltage between a first and a second AC terminal; the AC voltage having a fundamental period; the first means being operative for about 25% of the time during each fundamental period to cause the first AC terminal to be at the same potential as that of the first DC terminal; and

second means ~~connecting~~ a gas discharge lamp with the AC terminals.

6. An arrangement comprising:

source means providing a DC voltage between a first and a second DC terminal;

inverter means connected with the DC terminals and operative to provide a substantially sinusoidal AC voltage between a first and a second AC terminal; the AC voltage having a fundamental period; the inverter means including electronic means operative for a first brief part of each fundamental period to cause the first AC terminal to be electrically connected with the first DC terminal, such that there is substantially no voltage difference between the first AC terminal and the first DC terminal during the first brief part; the first brief part having a duration approximately equal to one quarter that of the fundamental period; and

circuit means operative to connect a gas discharge lamp with the AC terminals.

7. The arrangement of claim 6 wherein the electronic means is also operative for a second brief part during each fundamental period to cause the first AC terminal to be electrically connected with the second DC terminal; the duration of the second part being substantially the same as that of the first part.

8. (Amended) An arrangement comprising:

a reference terminal;

a DC source connected with the reference terminal and operative to provide a DC voltage between a positive DC terminal and a negative DC terminal;

[half-bridge] inverter connected with the DC terminals and operative, as viewed from the reference terminal, to provide a first non-sinusoidal AC voltage at a first AC terminal;

a tank inductor connected between the first AC terminal and a second AC terminal; the second AC terminal exhibiting, as viewed from the reference terminal, a second non-sinusoidal AC voltage; a third AC voltage being present across the tank inductor; the third AC voltage being of sinusoidal waveshape; and

circuit means operative to provide for disconnectable connection of a gas discharge lamp across the tank inductor.

9. The arrangement of claim 8 wherein: (i) a first rectifier is connected between the second AC terminal and the positive DC terminal, with the first rectifier's cathode being connected with the positive DC terminal; and (ii) a second rectifier being connected between the second AC terminal and the negative DC terminal, the second rectifier's anode being connected with the negative DC terminal.

10. The arrangement of claim 8 wherein a first tank capacitor is connected between the first AC terminal and the reference terminal.

11. The arrangement of claim 8 wherein a second tank capacitor is connected between the second AC terminal and the reference terminal.

12. The arrangement of claim 8 wherein the half-bridge inverter includes a first transistor connected between the negative terminal and the first AC terminal and a second transistor connected between the positive DC terminal and the first AC terminal.

13. An arrangement comprising:

a source providing a DC voltage at a set of DC terminals;

first means connected with the DC terminals and operative to produce a main AC voltage between a first and a second AC terminal; the main AC voltage having a fundamental period; and

second means operative to connect a gas discharge lamp in circuit with the AC terminals.

14. The arrangement of claim 13 wherein the first means includes:

a first terminal at which exists, with respect to a reference terminal, a first AC voltage having a first peak-to-peak magnitude and characterized by having four time segments: (i) a first time segment having a first duration, all during which the instantaneous magnitude of the first AC voltage increases from a first voltage level to a second voltage level by way of a gradually diminishing rate of increase; (ii) a second time segment having a second duration, all during which the instantaneous magnitude of the first AC voltage remains substantially constant at the second voltage level; (iii) a third segment having a third duration, all during which the instantaneous magnitude of the first AC voltage decreases from the second voltage level back to the first voltage level by way of a gradually diminishing rate of decrease; and (iv) a fourth time segment having a fourth duration, all during which the instantaneous magnitude of the first AC voltage remains substantially constant at the first voltage level; the first duration being approximately equal to the second duration; and

a second terminal at which exists, with respect to the reference terminal, a second AC voltage; the second AC voltage having a second peak-to-peak magnitude and being characterized by being different from the first AC voltage in such manner as to cause a substantially sinusoidal output AC voltage to exist between the first and the second AC terminal;

the substantially sinusoidal AC output voltage thus being the same as the main AC voltage.

15. The arrangement of claim 14 wherein the substantially sinusoidal AC output voltage has a peak-to-peak magnitude about twice as large as the first peak-to-peak magnitude.

16. The arrangement of claim 14 wherein the matching means includes a reactive current-limiting means.

17. The arrangement of claim 14 wherein the first peak-to-peak magnitude is equal to the second peak-to-peak magnitude.

18. The arrangement of claim 13 wherein:

the arrangement includes a reference terminal; and

the first means is a half-bridge inverter operative, as viewed from the reference terminal, to provide a first non-sinusoidal AC voltage at the first AC terminal;

the arrangement also includes a tank inductor connected between the first AC terminal and the second AC terminal; the second AC terminal exhibiting, as viewed from the reference terminal, a second non-sinusoidal AC voltage; the main AC voltage: (i) being present across the tank inductor; and (ii) having a substantially sinusoidal waveshape.

19. The arrangement of claim 18 wherein: (i) the set of DC terminals includes a positive DC terminl and a negative DC terminal; (ii) a first rectifier is connected between the second AC terminal and the positive DC terminal, with the first rectifier's cathode being connected with the positive DC terminal; and (iii) a second rectifier being connected between the second AC terminal and the negative DC terminal, the second rectifier's anode being connected with the negative DC terminal.

20. The arrangement of claim 18 wherein a first tank capacitor is connected between the first AC terminal and the reference terminal.

21. The arrangement of claim 18 wherein a second tank capacitor is connected between the second AC terminal and the reference terminal.

22. The arrangement of claim 18 wherein the half-bridge inverter includes a first transistor connected between the negative DC terminal and the first AC terminal and a second transistor connected between the positive DC terminal and the first AC terminal.

23. The arrangement of claim 13 wherein: (i) the first means includes an inverter having a first and a second transistor; (ii) a first transformer is connected with the first transistor; (iii) a second transformer is connected with the second transistor; and (iv) the first transformer is an entity separate from the second transformer, such that magnetic flux within the first transformer does not affect magnetic flux within the second transformer.

24. The arrangement of claim 13 wherein: (i) the first means includes an inverter having a first and a second periodically switching transistor means; (ii) a first transformer means is connected with control terminals of the first transistor means, which first transformer means has a first ferro-magnetic core carrying a first magnetic flux; (iii) a second transformer means is connected with control terminals of the second transistor means, which second transformer means has a second ferro-magnetic core carrying a second magnetic flux; and (iv) the first ferro-magnetic core is magnetically separate from the second ferro-magnetic core, such that the first magnetic flux is not affected by the second magnetic flux.

25. The arrangement of claim 13 wherein: (i) the first means includes an inverter having a first and a second periodically switching transistor means; (ii) a first transformer means is connected with control terminals of the first transistor means, which first transformer means has a first ferro-magnetic core carrying a first magnetic flux; (iii) a second transformer means is connected with control terminals of the second transistor means, which second transformer means has a second ferro-magnetic core carrying a second magnetic flux; and (iv) the first ferro-magnetic core is magnetically separate from the second ferro-magnetic core, such that the first magnetic flux need not be the same as the second magnetic flux.

26. The arrangement of claim 13 wherein: (i) the main AC voltage has a fundamental period; (ii) the first means includes an inverter having a first and a second periodically conducting transistor means; (iii) the first transistor means has a first pair of control terminals at which is provided a first control signal functional to render the first transistor means conductive for a first duration of each fundamental period, such that the first duration is clearly shorter than half of the complete duration of the fundamental period; (iv) the second transistor means has a second pair of control terminals at which is provided a second control signal functional to render the second transistor means conductive for a second duration of each fundamental period, such that the second duration is clearly shorter than half of the complete duration of the fundamental period; and (v) the first transistor means is prevented from being conductive at the same time as the second transistor means is conductive.

27. The arrangement of claim 13 wherein:

the arrangement includes a reference terminal; and

the first means includes an inverter having an output terminal and being operative to provide, between the output terminal and the reference terminal, an output voltage having a substantially trapezoidal waveshape; the trapezoidal waveshape including four time segments: (i) a first time segment having a first duration, all during which the instantaneous magnitude of the output voltage increases gradually from a first voltage level to a second voltage level; (ii) a second time segment having a second duration, all during which the instantaneous magnitude of the output voltage remains substantially constant at the second voltage level; (iii) a third time segment having a third duration, all during which the instantaneous magnitude of the output voltage decreases gradually from the second voltage level back to the first voltage level, the duration of the third time segment being equal to or longer than about one tenth of the duration of the second time segment; and (iv) a fourth time segment having a fourth duration, all during which the instantaneous magnitude of the output voltage remains substantially constant at the first voltage level.

28. The arrangement of claim 13 wherein:

the source has a DC center terminal; and

the first means includes a half-bridge inverter having an output terminal and being operative to provide, between the output terminal and the DC center terminal, an output voltage having a substantially trapezoidal waveshape; the trapezoidal waveshape including four time segments: (i) a first time segment having a first duration, all during which the instantaneous magnitude of the output voltage increases gradually from a first voltage level to a second voltage level; (ii) a second time segment having a second duration, all during which the instantaneous magnitude of the output voltage remains substantially constant at the second voltage level; (iii) a third time segment having a third duration, all during which the instantaneous magnitude of the output voltage decreases gradually from the second voltage level back to the first voltage level, the duration of the third time segment being equal to or longer than about one tenth of the duration of the second time segment; and (iv) a fourth time segment having a fourth duration, all during which the instantaneous magnitude of the output voltage remains substantially constant at the first voltage level.

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